DOCUMENT RESUME

ED 251 311 SE 045 264

AUTHOR	Murphy, Barbara K.
TITLE	Remedial Math Program for Grades 5-8.
PUB DATE	20 Nov 84
NOTE	98p.
PUB TYPE	Reports - Research/Technical (143)
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	*Elementary School Mathematics; Intermediate Grades; Junior High Schools; *Mathematics Achievement; Mathematics Education; *Mathematics Instruction; *Mathematics Skills; *Remedial Instruction; *Remedial Programs; Secondary School Mathematics; Student Attitudes; Teaching Methods
IDENTIFIERS	*Mathematics Education Research

ABSTRACT

This project examined: (1) the skills to be taught in a remedial mathematics program for fifth through eighth grade students (N=40) who are at least 2 years behind in general mathematics at their respective grade levels; (2) guidelines from the educational literature that are appropriate for use by a remedial mathematics middle school teacher; (3) materials appropriate for use in a remedial mathematics middle school program; (4) the impact of a remedial mathematics program on students' mathematics achievement and attitudes toward mathematics; (5) communication skills and techniques needed to improve a remedial mathematics program; and (6) the value of planning in a remedial mathematics program. Achievement data show that the program may be a valuable guide that will develop greater gains for individual students, and this may possibly improve effort and positive attitudes toward mathematics. Attitude data (based on 4 weeks of measuring students' attitudes about themselves and their current remedial program) are also included. Other areas examined are discussed in the literature review section of this study, including teaching suggestions which require only minimal teacher preparation. A description of the remedial mathematics program, student report forms, classroom suggestions, and ideas for conferences are included in the appendices. (JN)

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REMEDIAL MATH PROGRAM
FOR GRADES 5-8

by
Barbara K. Murphy

SE045264

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November 20, 1984
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ACKNOWLEDGEMENT

This project is dedicated to my parents, Bernard and Eileen, for their encouragement and perserverance, but most of all for the gift of life...and also to my children, Bernadette and Damian, for their love and support.

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Chapter 1

INTRODUCTION

A. Statement of the problem: This project focuses on materials, methods, techniques, and skills needed to develop a positive remedial math program for fifth through eighth grade remedial math students who are at least two years behind in general math at their respective grade levels. Remedial math programs are currently a topic that does not always "win friends and influence people". Yet the concept and need for such programs appears to be an ongoing one. As such, it is necessary to address ways to improve the learning process for these students. All students are capable of learning. Therefore, this project is an attempt to address the shared responsibility of educating remedial math students, through suggestions for improving communication and planning.

B. Importance of the problem: This project focuses on the scope and sequence of skills needed by these remedial math students in order that these students may attempt to return to their actual grade level math course. The math program is to prepare each student to be able to do their own basic grade level math work in a regular math class with an average grade or better.

Few programs statewide exist for remedial math students in the middle school. Most information gathered is by means of conversation with other professionals such as curriculum co-ordinators, special education teachers, general classroom instructors, and the State Department of Education.

C. Research questions: This project addresses the following questions:

1. What are the skills to be taught in a remedial math program for fifth through eighth graders? (eg. scope and sequence of skills.)
2. What guidelines from education literature are appropriate for use by a remedial math middle school teacher?
3. What materials are appropriate for use in a remedial math middle school program?
4. What is the impact of a remedial math program on student attitudes toward math?
5. What is the impact of this remedial math program on the student's math achievement?
6. What are some communication skills and techniques needed to improve a remedial math program?
7. What is the value of planning in a remedial math program?

Questions 1, 2, and 3 will be answered in the literature review and treatment sections of this report. Questions 4 and 5 will be answered in the data analysis section while questions 6 and 7 will be answered in the literature review section.

D. Limitation of the study: This study has the following limitations:

1. This study is restricted to middle school remedial math students in a small rural community.
2. This study does not encompass a remedial math curriculum for K-12.
3. This study is planned and designed for this specific school district and may not be transferable to upper or lower three grade levels and/or locations of urban or other rural communities.

E. Definition of terms:

1. Ability testing - refers to testing done to

ascertain what potential for learning the student has; often done by the school psychologist.

2. Achievement testing - testing done to reveal student's current level of academic achievement; can be done by the classroom teacher or the special education teacher.
3. Attention span - refers to the length of time the student can attend to any one task.
4. Auditory discrimination - ability to discrimiate differences in sounds heard, such as the spoken word.
5. Auditory learner - this student learns best through hearing material presented aloud.
6. Behavior management - techniques used to develop desired behaviors or extinguish undesired behaviors, using reinforcement principles.
7. Central nervous system (CNS) - referring to the brain and connecting neurological system.
8. Chronological age (CA) - refers to the child's actual age computed in years, months and days from time of birth.
9. Contingency contract - can be a verbal or written contract with the student, in which a reward is given as a consequence of a prespecified desired behavior occurring.
10. Distractible - refers to the student who very

easily get off task and may tune into surrounding stimuli, or appear to daydream.

11. Figure-ground discrimination - refers to the ability to pick up a known symbol or object out of a background field.

12. Hyperactivity - student maintains an above-normal activity level, commonly evidenced by extra movement and out-of-seat behavior in the classroom.

13. Hypoactivity - student is underactive as compared to those around him.

14. Impulsivity - refers to students who may do whatever comes to mind with little thought of the consequence of their behavior.

15. Intelligence quotient (IQ) - derived from testing done by the school psychologist which will give an estimate of the child's intellectual ability or potential for learning.

16. Learning disabled - applies to a heterogeneous group of children to indicate a discrepancy between the child's potential learning ability and their actual achievement level, when no physical or emotional cause for the discrepancy can be determined.

17. Least restrictive environment - refers to placing the child within regular programming to the maximum extent appropriate, depending upon the child's skill level. When the child is placed, he/she

should have skills to experience some successes.

18. **Leghargic** - tendency to be very slow and having little energy.

19. **Modality** - refers to the method in which the student learns; visual and auditory modalities are self-explanatory, kinesthetic refers to body movement, tactile refers to the sense of touch.

20. **Multisensory** - refers to involving all the senses in the learning tasks.

21. **Neurological soft signs** - this term is often used when it is suspected there may be some brain dysfunction but no true 'hard' diagnostic indicators of this can be seen.

22. **Occupational therapy service (OT)** - a service which may be available through the intermediate office, used primarily with children experiencing gross and fine motor difficulties.

23. **Peer tutoring** - using a non-handicapped learner to assist a student with learning difficulties.

24. **Perceptual** - refers to the ways in which the student processs information taken in, generally refers to auditory or visual processes.

25. **Perservation** - continuing with an action or a behavior for an extended period of time; example - continuing with an initial sound after first saying it; this can occur both in academic work or physical behaviors.

26. Physical therapy (PT) - a service which may be available through the intermediate office or local medical personnel, used primarily for physically handicapped children or accident cases.

27. Reinforcement - a positive or negative consequence of behavior which can be either a verbal statement or a tangible item.

28. Reversal - tendancy to reverse letters, numbers or words in reading and writing; developmentally normal until age eight.

29. School psychologist - person responsible for formal testing and evaluating of student's abilities.

30. School social worker - person responsible for working with student and their family as a liason for the school, or in a counseling role.

31. Self-concept - refers to how the students perceive themselves in relation to others, and how the students feel about themselves.

32. Stimulus - any object or event to which the student may respond.

33. Strategies - techniques which students may use to enhance their memory and/or retention of information; learning disabled students may need to be taught strategies which others acquire incidentally.

34. Task analysis - process of breaking a concept into component parts to facilitate learning.

35. Teacher consultant - a teacher who may work directly with the students or may offer suggestions and materials to the classroom teacher for use with the special students.

36. Visual discrimination - ability to see likenesses and differences in shapes, symbols, letters and words.

37. Visual learner - one who learns best through seeing material, often a note taker, referring to diagrams and demonstrations.

38. Wechsler Intelligence Scale for Children-Revised (WISC-R) - a frequently used intelligence test which does reveal information about the student's specific strengths and weaknesses.

39. Written expression - referring to any areas in which a student is asked to write an answer, idea or paragraph.

Chapter 2

REVIEW OF THE LITERATURE AND RELATED RESOURCES

A. Attitude of low-achieving students: Failure in math can be caused by emotional problems, but it also can cause emotional problems (Reisman, 1972). Children may develop a fear of math before they come to school by hearing parents talk about their difficulty or failure in math, thus the student may identify with the parent. Previous teachers may have instilled their insecurities about teaching math. Students may have personal experiences which are negative or unpleasant. Competition with the parent's mathematic ability may cause anxiety because of the student's lack of success, thus blocking learning.

Within the classroom the effect of low self-concept has become an increasing concern (Blanck & Blanck, 1974; Buchholtz, 1978). Once a child learns that he or she has limited ability to initiate actions successfully, that child may become unable to act, may compensate by becoming aggressive, or may try to mask his or her inability by overcompensation (Rawson, 1973). If we gain the idea of competence through recognition of what we can do, then the effect of conventional educational programs, focusing on the weakness of the child, may actually impede the achievement of feelings of competence.

When students are placed into situations which they feel are too complex, students may revert to infantile patterns which were once successful (Eisenberg, 1967). Helplessness and dependency, useful at one stage of life, become tools and strategies of coping.

Since math is a high-status subject, failures in math achievement can cause emotional, physical, and psychological problems for the student.

B. Parental effect on achievement: Children who overachieved in work accuracy may have been subjected to more pressure than was necessarily good for them. They succeeded by achieving on a lower level of learning which involved rote learning, but failed to do well in comprehension. The parents of the overachiever need to understand their child better and accept his/her limitations (Mumpower and Riggs, 1970).

"Male underachievers have particularly poor relationships with their fathers." (Pierce, 1961). An underachiever's home environment appears to be more punitive (McGillivary, 1964). In a Los Angeles guidance clinic, academic failure was greatest among those having no adult male in the home (Rouman, 1965).

In 1974, at the preschool level, research states active involvement of the family is critical to a programs' success (Bronfenbenner, 1974). At the elementary level, the form of parent involvement does not seem to be critical, so long as it is reasonably well-planned, comprehensive, and long-lasting (Henderson, 1981). However, some studies of parents' home participation to aid school learning suggest that effects are not universally positive. In a study of Michigan elementary schools, it was found that there was greater parental involvement in white than in black schools, but only in black schools was high involvement associated with greater achievement (Broohover, 1979).

Certain prevailing beliefs about parent participation do not stand up to research findings. It appears that parents' level of education has no connection with their ability to use at-home instructional techniques or with their willingness to help; that working mothers are just as able to help their children as unemployed mothers; and that teachers do not necessarily work better with highly educated parents (Moles, 1982).

It is noteworthy that teachers in one large survey employed a range of parent involvement practices equally as often with poorly educated as with better educated parents (Becker and Epstein, 1982). Also, working mothers help as much with school work and other forms of participation with student learning as do unemployed mothers, even in the early adolescent years (Medrich, 1982; Tangri and Leitch, 1982).

Therefore, these facts emphasize continued importance that home environment is a strong factor in a child's school success as well as failure (Reisman, 1972).

C. Teacher attitudes and techniques for working with lowachieving students: Teacher attitude toward low-achieving students can flow from low expectations and interfere with the students progress in the following two ways: 1) it limits the amount of material that students can learn; partly because their teachers do not try to teach them as much, and partly because they give up more easily and quickly in teaching them the things they do try to teach; and 2) teacher behavior can style pupil's motivation and give them a feeling of alienation (Good, T.L. and Brophy, J.E., 1973). If anything, we might expect the teacher to be on the lookout for chances to encourage the low-achievers by praising the success that they do attain and would, at the same time, be slow to criticize them in view of their greater learning difficulty.

Consequently, these are some desirable teacher attitudes and expectations that are inextricably linked with effective teaching:

1. The teacher believes that skill acquistion is the major goal of the program and the deliberate instruction is a major responsibility of the teacher.
2. The teacher genuinely and seriously expects all children to meet at least the minimal program objectives and is willing to spend extra time with the children who have difficulty.
3. The teacher understands that the crucial aspects of the teaching role are instruction, diagnosis, and remediation rather than the giving of directions and evaluations.
4. The teacher expects to talk to and with the children, not merely at them.
5. Teachers realize that when their behavior is appropriate their pupils will find skill acquistion inherently enjoyable and rewarding (Goud, T.L., and Brophy, J.E., 1973).

Teachers must provide basic experiences for remedial math students. The following experiences and techniques may be used:

1. manipulating objects to form sets of different numbers;
2. matching objects on one set to objects of another set in a one-to-one correspondence to see if any are left over;

3. guiding students to abstract concepts of size, shape, or number from sets of objects;
4. moving from manipulation of objects to activities with pictures of objects; and
5. guiding students to work with symbols (Reisman, 1972).

Teachers must provide concrete manipulatory experiences in sufficient amounts for each student to build a foundation of basic mathematical concepts. If these are not provided sufficiently, then the teacher can not expect student success.

Positive classroom atmosphere is generated by the teacher. Sometimes, teachers create the atmosphere that does not encourage asking questions when an idea is not understood. Teachers must diagnose gaps in understanding by informal quizzes and talking with the student. An analysis as to whether the child is experiencing difficulty as a result of weak concept level or lack of facts necessary to build a particular concept is necessary for remediation.

Facts are arbitrary associations and contain a minimum amount of meaning. They are learned in rote manner and thus are in need of practice until they can be handled with facility. However, concepts are a different matter. The learning of concepts depends upon conditions associated with the learner, the nature of the task and the abstracting process (Brownell, 1950). Therefore, a program designed for remedial math students should include practice in basic math facts.

Teaching is a very complex activity, but teachers who enjoy children, who have mastered basic teaching techniques, and who are open to corrective feedback are well on their way toward becoming outstanding teachers.

D. Diagnostic-prescriptive teaching strategy: - Diagnostic prescriptive teaching is appropriate for all children and critical in teaching remedial math students. Such a strategy enables a teacher to create new teaching squences which are more effective as well as identifying strong and/or weak areas that need either additional emphasis or less attention.

In using Gagne's Concept of learning hierarchies and Bruner's three levels of learning, a teacher may identify the root of student weakness in math and determine the teaching method which will help the student to alleviate the weak area (Gagne, 1962 and Bruner, 1963). An example: The remedial math student is able to manipulate the hands on a clock. The next step would help the student transfer the concrete thought to an abstract concept by allowing him to do a clock on a piece of paper.

By analyzing the concept or skill being taughts, the teacher is in a position to set aside traditional teaching sequences and try new approaches (Reisman, 1972). Once you analyze a concept or skill in all its parts, you can rearrange the sequence of instruction according to the particular needs of the student. An example: The remedial math student is given a clock which has no numbers on the face, only the hands. Position the hands on the clock and ask the student to put the proper numbers on the clock.

For instance, place the large hand upright to 12 and the saml1 hand to six...12:30.

E. Remedial Math - What is it? Remedial math, although not a new concept, is at best an ambiguous and ill-defined area. Many professional books and journal articles have been devoted to the subject of math. However, a professional consensus of opinion has yet to be achieved regarding the definition of a remedial math program. In many instances, the accepted definition and implementation strategies for remedial math are dependent upon the individual school settings and personnel involved.

Although remedial math students are not classified in the same categories as special education students, mainstreaming these students into a regular math class should be the main goal of such a program. Fairchild and Henson (1976) have defined mainstreaming as keeping an exceptional child with normal peeers as much as possible, in the least restrictive educational environment which will meet the child's needs. Simply stated this means the exceptional child should be placed in as 'normal' of an environment as possible, while still meeting his/her special needs.

This project will attempt to assist the classroom teacher in providing quality educational experience for the remedial math student, while not neglecting the vast demands and responsibilities associated with the regular classroom students. it is hoped that some of the ideas and techniques suggested will be found useful for regular classroom students as well.

The following is an expression of how a mainstreamed student feels about the school system. This excerpt is an example of this thought.

CAGED

I am so lonely, so very lonely.
Nobody really listens to me, no one seems to care.
I am like an animal in a cage,
Kicking and Scratching,
Longing to be free of the iron bars
Which lock me in.
People smile as they go by,
Admiring my tricks and saying how smart I am
For an animal.
They look in through the bars of my cage
And I turn and look at them.
But no one opens the door.
They are afraid to let me out.
They don't want to get hurt.
There are those who let me out.
I have grown to love them very much.
The rest of them just turn their head and go their separate ways.
If some of them would only get to know me,
They would see what I can do.
Please unlock my cage!

By a sixth grade mainstreamed blind student
Exceptional Children, 1980

This is another example of a students' feeling within a classroom. This is well-expressed by the following poem.

MY TEACHER LIKES ME

My teacher likes me!
My teacher likes me!

She keeps a 'good' book just for me
Right inside her desk.
We talk about what I've done each day
And she writes down all the good
things that I did.

Sometimes I have to go into the hall
But for just a little while
Cause I get real noisy in math class.
But she isn't cross or mad,
She just tells me why I'm there
And I come back real soon and try again.

The other teachers that I have
Always shout and yell at me,
Or send me to the office just to sit,
And keep a book at their desk
That tells bad things that I did,
And I feel all wrong inside when they
do that.

But I go back to my own room,
And then things seem all right again
Cause my 'good' book's right there
And I can make it grow.
This year I like school better
Cause

My teacher likes me!
My teacher likes me!

Author Unknown

F. Remedial Math Students - Who are they? A variety of labels are associated with these students who have been chosen to be in a remedial math program. Some of these labels include learning disabled, slow learner, developmentally delayed and dyslexic. This is by no means an exhaustive listing, as new descriptive terminology and labels continue to be developed in association with new theories. However, there are some characteristics that may be seen in varying degrees in some of the remedial math students.

Hyperactivity - the student may be unable to sit or attend to tasks for an extended period of time.

Short attention span - the student may not attend to the work at hand or may move quickly from idea to idea.

Distractible - every noise or motion in the classroom seems to catch this child's eye or ear.

Perservation - once started on a behavior, this child may find it hard to stop. This can be academic or physical behaviors.

Often alone - although liking to be around other children, the student cannot comprehend the rules of play or what is expected of her/him, and thus has difficulty in cooperative activities.

Difficulty in following directions - the student may lack memory skills, or skills to process information so that following directions is difficult. For written directions, the student may lack the necessary reading skills.

Poor printing or writing - several different causative factors could contribute to this, including poor fine motor skills, poor eye-hand coordination, ppor pencil grasp or poor visual-motor coordination.

Difficulty in remembering number forms - these students may not see the numbers as we see them, or they may have difficulty writing what they see or simply have difficulty with memory.

Reversals in written work - reversals are especially noted as indicative of some difficulty after the age of eight, as they are developmentally normal until this time.

Difficulty with concepts - this student may have difficulty with time, numbers, months and relationships.

Visual discrimination - this student may find it difficult to see likenesses and differences in pictures, numbers and symbols.

Poor self-concept - may feel inadequate or unhappy with self, sometimes obvious through statements about self or behavior.

Auditory discrimination problems - this student may have some difficulty in hearing the difference between various sounds, letters, words, and numbers.

Lethargic - this student may be hypoactive - that is, physically slow or underactive, or rarely contributing to the class.

Sequencing - the student may have difficulty putting events in order. This can be visual or auditory.

This is by no means an exhaustive listing of these students' characteristics. A recent area of concern related to the special learner is that of information processing skills. This covers the method in which students manipulate the information they are given. The general areas of information processing are as follows:

Visual skills
Auditory perception skills
Attention skills
Orientation skills
Memory skills
Memory strategies
General learning strategies
Classification/Categorization skills
Higher level thinking skills

Each of these areas can be further subdivided into specific skills. This is more often done by a school psychologist, consultant, or special education teacher. It is important to remember this area when discussing characteristics of a learner, as many of these students do have difficulties in some areas related to information processing.

G. Communication - The First "Key" To A Remedial Math Program: As in any cooperative venture, it is absolutely essential to have effective communication between all those involved in the remedial math program. To develop effective communication, it is necessary to first specify all those who will be involved in the program and its process. This listing could include:

- The remedial math student(s)
- The regular classroom students
- The remedial math students' parents
- The remedial math teacher
- The regular education teacher
- An administrative representative - usually the principal
- Special education support services personnel:
  - School social worker
  - School psychologist
  - Speech and language therapist
  - Occupational therapist
  - Physical therapist
  - School counselor, where appropriate
  - Educational consultants, where available.

In general, the support service personnel will work closely with the remedial math teacher. Communication among these personnel will include formal meetings, as well as written reports to be filed in the student's confidential folder.

To maximize the effectiveness of communication, it is suggested that there be written communication. It is too easy in the course of a busy educational day to forget what was discussed in passing in the hall. For communication between the regular education staff and the remedial math teacher, several written communication tools are suggested to be used as needed. These tools include the following:

1. Remedial Math Classroom Report - This is designed to be completed at least twice during the marking period. Reviewing the results will indicate areas in which the

remedial math teacher can assist the student to improve regular classroom performance. It also provides information related to the regular classroom teacher's needs for materials or information about the student.

2. A Behvaior Checklist - This can be completed by the regular classroom teacher when there is concern about a particular student. When completed, this checklist can be shared by the regular education teacher and the remedial math teacher. This sharing will possibly generate some suggestions for improvement.

3. Daily Regular Classroom Reports - This can be used when a student is having difficulties settling into the routine of a remedial math class, or in the initial phases of a student's placement. Similar to the Remedial Math Classroom Report, it will provide information to allow the remedial math teacher to assist the student in the regular class. Due to its daily nature, the assistance will be more immediate. This type of reporting could be extended to any setting in which the remedial math student participated - lunchroom, playground, special classes or library.

4. Comments About Children - Focusing more specifically on communication with the students and parents, this listing provides words you may use to describe the student. Pay particular attention to the positive comments. Too often, it is easy to remember the negative and forget the positive.

5. Ideas for Parents Conferences - This lists some suggestions to help the regular educator to be at ease in talking with the remedial math student's parents. It is sometimes a delicate matter to discuss the learning difficulties of a student with the parents.

6. Examples of Home Notes - The remedial math student may need information to go home and his/her daily performance. This can reinforce good work and increase the work output when needed. A couple of easy to use formats are suggested.

The thought of additional paperwork is distasteful for teachers already involved with many daily clerical tasks. Most of these communication tools, therefore, are in the form of checklists to facilitate their use. It is hoped that positive results generated through their use will be sufficiently rewarding to insure continued use.

Communication with regular students regarding remedial math students can often be done informally. Techniques such as peer-tutoring will facilitate understanding. If the remedial math student has a particular strength or interest, he/she may wish to share this with the rest of the class. This will increase understanding and acceptance. Depending upon the individual class and the teacher. The students may wish to discuss remedial math. This is not often the case at the elementary level.

Communication with parents of the regular classroom students usually is done through answering any questions they may have concerning remedial math. This can often be done at conference time. In many instances, their own children will have explained the situation and there is no concern evident.

The importance of informal communication cannot be overlooked here. Chatting in the hallway, over lunch, or stopping by a coworker's room to share an idea or experience, creates a feeling of unity and mutual concern about the remedial math student.

Communication has many forms - verbal, written, formal and informal. However, when it is accomplished, communication remains a "key" element necessary for a successful remedial math program.

H. Planning - The Second "Key" To A Remedial Math Program:

It would seem self-evident that success cannot occur in a remedial math program without adequate planning. Yet in many locations remedial math programs emerge 'overnight'.

Planning for a remedial math student starts with testing after which a meeting will help provide the most satisfactory program for the the student. This planning usually involved the following personnel:

The regular classroom teacher
The remedial math teacher
The principal
The parents of the remedial math student
The remedial math student when appropriate.

These individuals working together discuss the student's testing profile, strengths and weaknesses of the student, learning style of the student and any other pertinent information.

Considering the students information as well as the requirements of the regular classroom, a plan is made to place the student where he/she will be most successful.

The chart on the following page is useful in considering the requirements of the regular classroom. It lists five areas for which planning may need to be undertaken to increase the remedial math program success. These areas are:

Classroom organization
Classroom management
Methods in content presentation
Methods in content practice
Methods in testing.

As can be seen on the chart, each of these areas is subdivided and lists several possible teaching alternatives in each area. At first glance, this information seems deceptively simple. However, further study shows this chart to be quite all-encompassing as well as though provoking. It is not a revolutionary new panacea to cure all ills, but careful exploration may rekindle a forgotten idea or point your thinking in a new unexplored direction. This chart may also offer suggestions useful for the regular classroom students.

CLASSROOM ORGANIZATION

VARY GROUPING ARRANGEMENTS
- large group instruction
- small group instruction
- individual instruction
- peer tutoring
- self-instructional activities
- learning centers

VARY METHODS OF INSTRUCTION
- teacher directed
- student directed

CLASSROOM MANAGEMENT

VARY GRADING SYSTEM
- homework
- tests
- class discussion
- special projects

VARY REINFORCEMENT
- praise
- notes sent home
- grades
- free time
- special activity
- tangibles
- progress charts

VARY RULES
- differentiated for some students
- explicit/implicit

METHODS OF PRESENTATION

VARY CONTENT
- amount to be learned
- time to learn new information
- conceptual level

VARY GENERAL STRUCTURE
- advanced organizers
- previewing questions
- cues, mneumonic devices
- provide immediate feedback
- involve students actively

VARY TYPE
- verbal-lecture discussion
- written-texts, worksheets
- demonstrations
- audio-visuals
- tape recorders
- filmstrips
- movies
- opaque projectors
- transparencies

METHODS OF PRACTICE

VARY GENERAL STRUCTURE
- amount to be practiced
- time for practice
- group/individual
- teacher directed/ independent
- items ranging from easy to difficult

VARY LEVEL OF RESPONSE
- copying
- recognition
- recall with cues
- recall without cues

VARY TYPE OF MATERIALS
- worksheets
- texts
- audio-visual equipment

METHODS OF TESTING

VARY TYPE
- verbal
- written
- demonstration

VARY GENERAL STRUCTURE
- group/individual
- amount to be tested
- time for completion

VARY LEVEL OF RESPONSE
- recognition
- recall with cues

REALISTIC ALTERNATIVES FOR A REMEDIAL MATH TEACHER FOR PLANNING

Personalizing the information from the chart with the student's, weaknesses, academic achievement levels and learning styles may yield specific ideas for adjusting methods and/or material for that student

The following teaching suggestions are presented certainly not as an exhaustive listing, but as some ideas that may help work with remedial students and require only minimal teacher preparation.

Peer tutoring - allows the students who complete work quickly to read worksheets to each other. Another student may dictate answers to worksheets and class questions to their peer tutor who can write these down. Peer tutoring is applicable in almost every activity and may benefit the remedial math student socially as well as academically.

Oral tests - Many remedial math students have difficulty with written materials. Orally answering questions and test taking may be advisable in these circumstances.

Demonstration of knowledge - again, rather than writing an answer, allow the student to show how they would answer.

Use of tape recorder - there is a wide variety of commercial materials available using the tape recorder. Many of these kits are available through the Intermediate School District material loan.

Tutorette - again available through the Intermediate School District (ISD) Office, these come with prepackaged cards on many different levels. They also come with blank cards so you can program your own information.

Variety of self-correcting machines - Little Professor - generates math problems for addition, subtraction, multiplication, and division. It will tell students when they have the correct answer but will not give them the answer.

Tutorgram - The tutorgram also indicates by a light when the answer is correct. A wide variety of cards are available for the tutorgram covering math skills, geometric shapes, etc.

Charlie the Tracking Robot - Again this is self-correcting with a light signal and a beep. There is also a wide variety of cards covering many skills and levels.

SRA Math Kit - This kit covers early number functions through beginning multiplication and division. The cards are self-correcting by turning them over.

Developmental Learning Materials (DLM) - There is a variety of materials and levels for various skill areas in math.

Activities with old magazines - Cut, paste and label geometric shapes. Make an ABC book illustrated with magazine pictures for math. Cut out 2 hands, 5 feet, 10 hands, etc.

Writing suggestions - As remedial math students sometimes have difficulty with motor control, the following sequence may help improve the quality of writing numbers:

Trace numbers on 3x5 sandpaper
Trace numbers on an overlay following sample
Trace dotted numbers
Write numbers
Student may need to move from large samples to small uniform size.

Suggestions for clay - Modeling clay is good to involve a multisensory approach to learning. This student may practice making his numbers in clay. The older students may want to write problems in clay.

Using crutches - Allow use of manipulatives for math, as the student will generally abandon them when not needed. Allow use of multiplication charts, as it is important to understand the process of how to figure out the problem because some students may not be able to memorize facts.

Less on a page - Some students are easily overwhelmed by so much on a page. To avoid this, put less on a page and space it out more.

Self-monitoring for attending - Many remedial math students do have trouble paying attention to the task at hand. To assist them, use a tape recorder set at a low volume, audible only to them. Program a series of intermittent beeps. The student has a chart on his/her desk. When the beep is sounded the student records if he/she was attending or not attending.

As indicated previously, this is by no means an exhaustive listing of ideas and materials. These were chosen because of their ease of use or implementation. There are several books available which give countless ideas for teaching, many keyed to the specific problem areas of the student. The following are especially good:

The Methods and Materials Book, Great Lakes AIRC, 1975.
A Diagnostic and Prescriptive Technique, Farrald, R.F., and Schamber, R.G.
Teaching the Learning Disabled Adolescent, Alley, G., & Deshler, D., 1979.

Complete reference information will be listed in the bibliography.

Planning is important both for academic and behavioral success with remedial math students. It should come as no surprise that some remedial math students have behavioral difficulties. The key element of planning can assist in overcoming these difficulties. A simplistic behavioral model is as follows:

$$A \longrightarrow B \longleftarrow C$$

A = Antecedents
B = Behavior
C = Consequences

Because the model is basic, it is easily remembered and can be explained to students where this would be appropriate. The diagram illustrates that behaviors are a product of their antecedent (conditions existing before the behavior occurred) and their consequences (conditions occurring after the behavior).

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When a problem behavior is presented, think through these steps A-B-C. This may yield some valuable information about what caused the behavior, or why it continues to recur.

The basic steps for behavioral management system are presented here. At times, the remedial math student may need a system to help manage his/her behavior. This system can be administered by the teacher, or can be developed into a self-reporting system and monitored by the students. The basic steps necessary to most management systems are as follows:

1. Choose a target behavior - that is the behavior you wish to change.
2. Choose a reinforcer which will be meaningful to the particular student involved. This could be anything from a tangible type of reward like food or a toy, to social rewards. Students often choose to earn free time, or time doing a desired activity.
3. Plot a baseline of behavior so as to have a basis of comparison - This means note how many times the behavior occurred in a specified amount of time. You may wish to graph it for a visual representation for you and/or the student.
4. Begin a system of reinforcing the desired behavior, and/or ignoring the undesired behavior. Continuous reinforcement is best initially moving to only intermittent reinforcement.
5. Continue the behavior management for at least two weeks as you most times do not see immediate results. Keep precise records.
6. Check progress. If the system is working, continue reinforcement. If it is not working, consider changing the frequency of the reinforcer, or changing the reinforcer itself.
7. As success continues, gradually fade out the tangible reinforcers replacing them with social reinforcers. This should continue until the

student is operating solely on social reinforcers.

8. By this time, the behavior should be fairly well built into the student's repertoire. Continue intermittent social reinforcement to encourage the desired behavior.

Planning is also important to let the remedial math student know the daily expectations. Many remedial math students are not self-directed. On their own, they can find nothing to do in the classroom. To overcome this difficulty, a chart or task card is helpful. This gives the student a focus for the days assignments. It also frees the teacher from the interruptions that a particular student can present when they need to know what to do. A task card like this is very helpful also for a substitute or a remedial math teacher if a student is finishing work in the setting. Example: Math pages could be written in blue and the math book would then have a blue mark on it.

TASK CARD

Student ______________________________ Date __________

Class __________________________

Assignments	Pages	Worksheets	Teacher's Initials

The previous discussion suggested that parents would be included in the planning. At this meeting the parents can be a vital source of information regarding how the student feels about school, what types of rewards or incentives the student prefers, if the student has an adequate network of friends, and perhaps information about how the student feels about himself/herself. The importance of including the parents in planning after the remedial math program has begun cannot be overlooked.

Most parents want to be kept informed of their children' progress. In addition to this, through utilizing a system like the previously discussed "Home Notes", the parent may assist in reinforcing work done or assist in completing work that has not been done.

In some settings, both regular education parents and parents of the remedial math student become more actively involved in the planning and education of the remedial math students through working as volunteer aides for those teachers who have remedial math students in their classrooms. A program like this, if carefully structured and including a screening process for applicants, can promote a better understanding of the remedial math program as well as offer much needed assistance to the regular education teacher.

Planning with the regular education students can be done formally or informally depending upon the demands of the situation and the individual teacher's preference. Explaining techniques like the previously discussed peer tutoring or shared worksheets will informally include the regular education students in the planning. If more formal planning is preferred, the class can have a group discussion without the remedial math student(s) present. Ideas for this discussion could include each person's strengths and weaknesses, way help can best be offered, and sensitivity about people's feelings related to their learning difficulties.

The final section to be addressed in planning for a remedial math student is his/her learning style. It is certainly not a startling revelation that not all students learn in the same manner. As adults, people learn in different ways:

Some take notes
Some read aloud
Some read aloud and take notes
Some listen to speakers
Some prefer to see demonstrations

The same is true for students, both the remedial math student and the regular classroom students. In some cases this learning style is very prominent. In others, it is more subtle.

Students can be either visual or auditory learners. Some students appear to have many characteristics of both learning styles.

Checklists for the visual and auditory learner are included in Appendix I. These are easy to use. The teacher checks each statement that applies to the student in question. The number of checks is then totaled. A strong preference is indicated by a significantly greater number of checks in one area - either visual or auditory. As was stated, some students may have many characteristics of both styles and as such will not display a strong preference.

Appendix I has these checklists which recommend some classroom suggestions for the auditory and visual learner. If a student does display a strong preference, it is likely that he/she will experience more success if the methods suggested are utilized. If the student does not seem to have a pronounced dominance, most methods and materials will be fairly successful.

Chapter 3

METHOD

A. Subjects: Students in this remedial math program are fifth through eighth graders who are at least two years behind their regular math level and are rural, white, lower-middle class students.

B. Treatment: This remedial math program will consist of lesson plans for each skill level and high interest low level skill materials in order to attain the goal of this program (see Appendix I). As a supplementary math program, this project will illustrate in detail, materials, methods, techniques, testing, attitude changes, and motivation procedures to individualize materials based on the Michigan math objectives (see Appendix I). Most of the general units will involve a Pretest. The only students that will be covering the units are those who have difficulty in these areas. The units are developed into stations according to the objective. Each station is designed so that the material ranges in degrees of difficulty. Some students will work through all the stations. Other students will continue working on their individual basic math programs until they no longer need more practice in a particular skill. This is evaluated by testing and accuracy in their daily work.

C. Testing and Placement: The students in remedial math class were tested in October 1984 in order to diagnose specific skill areas which may need further attention. Pretest and posttest results will give normal scale equivalents, grade equivalents, scale score, raw score, gains and/or losses. The test administered was given in October 1984 and will be repeated in June 1985. The test required to be given is the Comprehensive Test of Basic Skills in Mathematics (CTBS). Students in grade 5 and 6 will take Level G form and students in grade 7 and 8 will take Level H form. Students are placed in the program based on general classroom teacher's recommendation, Michigan assessment scores, Iowa Test scores and/or testing with the California Achievement Test in Mathematics, forms 3A (5th - 6th graders) and 4A (7th and 8th graders).

D. Data Collection: Data for this project was collected by means of Teacher Attitude Checklists, progress reports (see Appendix I), student questionnaires, CTBS reports, and student attitude checklist (see Appendix II) and student interviews.

Chapter 4

Findings

A. Overview of Data: The forty students presently enrolled in remedial math range in age from ten to fifteen and grades five through eight. Ability levels range, after testing (CTBS-October 1984), from 3.9 to 9.1 respectively. Thirtythree of the forty students have been retained at least once and/or have been in a transition class between kindergarten and first grade. The student interviews projected low self-concept, feelings of unimportance and poor attitude toward schools and teachers. The student attitude checklist appears to show beginning signs of improvement in attitude and a desire for learning mathematics as an important skill for their future lives.

B. Description of Testing Results: Eighteen of the forty students in the remedial math program had the CTBS test in October 1983 and October 1984. The following results are a possible indication that a program such as this may be a valuable guide that will develop greater gains for individual students, and thus possibly improve effort and positive attitudes toward mathematics. (The other twenty-two students will be analyzed following these results.)

The fifth and sixth graders were given the Comprehensive Test of Basic Skills in Mathematics (CTBS) Level G in October

1983 and 1984 by their regular classroom teacher. Seventh and eighth graders were given the CTBS Test, Level H, in October 1983 and 1984 by their classroom teacher. The following charts and analysis shows the results of testing comparisons of those eighteen students who were tested with the CTBS tests in October 1983 and 1984.

The fifth graders consist of four students, two boys and two girls, that completed the CTBS Test in the fall of 1983 and 1984. The results indicate the least gain of 1.4 years (1 year, 4 months) and the greatest gain of 2.2 years (two years, two months). It is interesting to note with such a small sample that gains were made equally by boys and girls when gains are the total for the two girls (combined gain of 3.6) and two boys (combined gain of 3.6). Each student gained at least one month for every month of the year, which means students continued to retain and grow even after a three months summer vacation.

The sixth graders consist of five boy students that completed the CTBS test in the fall of 1983 and 1984. The results indicate the least gain of .4 (four months) and the greatest gain of 2.2 years (two years, two months). Of the five boys tested, one was retained in fifth grade and four were promoted to sixth grade. It is interesting to note that the least gains of .4 and .7 were not retained but the .9 gain was retained due to low academic performance.

The seventh graders consist of five students, three boys and two girls, that completed the CTBS test in the fall of 1983 and

1984. The results indicate the least gain of .6 years (six months) and the greatest gain of 2.7 years (two years, seven months). It is to be noted that one girl with a gain of 1.4 years was retained due to low academic performance. Although there were only two boys tested, the boys gained a combined score of 5.0 years and the three girls a gain of only 2.7.

The eighth graders consist of four students, three girls and one boy, that completed the CTBS test in the fall of 1983 and 1984. The results indicate the least gain of .8 years (eight months) and the greatest gain of 2.3 years (two years and three months). It is to be noted the boy in this testing gained the second highest score of 1.5 years. Although the gain appears adequate, further investigation indicates this student is chronologically two years older and has been retained twice previously.

The remaining twenty-two students have taken the CTBS test in October 1984 and are slated to be given the posttest in June of 1985. Testing results of grade equivalent on the pretest given in October 1984 indicate the following:

1. fifth grade students range in grade equivalent of 3.4 to 6.8;
2. sixth grade students range in grade equivalent of 4.0 to 6.7;
3. seventh grade students range in grade equivalent of 5.3 to 9.1;
4. eighth grade students range in grade equivalent of 5.8 to 8.9.

Further placement of these students within the program, or in assignment to just general classroom, will be based on teacher recommendation for those that score above level for placement in the remedial program (one year behind in fifth and sixth grade and two years behind in seventh and eighth grade). The CBTS test results, student attitude checklist, Michigan Assessment Tests, Iowa Test of Basic Skills, and Teacher recommendations are documented and on file with the Lakeview Middle School Counseling Department.

Grade	Boy	Girl	Gain
5		X	1.4
5	X		1.7
5	X		1.9
5		X	2.2

Grade	Boy	Girl	Gain
6	X		.4
6	X		.7
*6(5)	X		.9
6	X		1.5
6	X		2.2
* Retained			

Grade	Boy	Girl	Gain
8		X	.8
8		X	1.3
8	X		1.5
8		X	2.3

Grade	Boy	Girl	Gain
7		X	.6
7		X	.7
7		X	1.4
7	X		2.3
7	X		2.7

C. Description of student attitude checklist and results: The student attitude checklist was developed to measure student's feelings about themselves regarding mathematics. The Liker Scale questionnaire is designed to define these feelings.

The following analysis illustrates these results according to grade level and intensity of the student's feelings, ie.

1. strongly agree
2. agree
3. uncertain
4. disagree
5. strongly disagree

The following questionnaire was used.

Name: ______________________ **Grade:** ______________________

Age: ______________ **Boy:** ______________ **Girl:** ______________

Key:

Strongly Agree	SA
Agree	A
Uncertain	U
Disagree	D
Strongly Disagree	SD

1.	I give up easily when working with math that seems hard for me.	SA	A	U	D	SD
2.	I feel I can do math better since I have been in remedial math.	SA	A	U	D	SD
3.	I am more willing to try math problems after being in remedial math.	SA	A	U	D	SD
4.	I am more confident in working math problems when I feel I know my basic skills and facts.	SA	A	U	D	SD
5.	I feel better asking questions about a problem in remedial math than in my regular class.	SA	A	U	D	SD
6.	I feel better about myself in regards to math because of remedial math.	SA	A	U	D	SD

The fifth grade results are based on ten students answering the questionnarie. These are the findings:

1. question one
   a) agree - 1 student (10%)
   b) uncertain - 2 students (20%)
   c) disagree - 6 students (60%)
   d) strongly disagree - 1 student (10%)
2. question two
   a) strongly agree - 4 students (40%)
   b) agree - 3 students (30%)
   c) uncertain - 1 student (10%)
   d) disagree - 1 student (10%)
   e) strongly disagree - 1 student (10%)
3. question three
   a) strongly agree - 4 students (40%)
   b) agree - 4 students (40%)
   c) strongly disagree - 2 students (20%)
4. question four
   a) strongly agree - 6 students (60%)
   b) agree - 2 students (20%)
   c) uncertain - 1 student (10%)
   d) strongly disagree - 1 student (10%)
5. question five
   a) strongly agree - 4 students (40%)
   b) agree - 4 students (40%)
   c) uncertain - 1 student (10%)
   d) strongly disagree - 1 student (10%)
6. question six
   a) strongly agree - 4 students (40%)
   b) agree - 3 students (30%)
   c) uncertain - 3 students (30%)

The sixth grade results are based on ten students answering the questionnaire with one student absent. These are the findings:

1. question one
   a) strongly agree - 2 students (20%)
   b) agree - 3 students (30%)
   c) uncertain - 2 students (20%)
   d) strongly disagree - 3 students (30%)
2. question two
   a) strongly agree - 3 students (30%)
   b) agree - 5 students (50%)
   c) uncertain - 2 students (20%)

3. question three
    a) strongly agree - 6 students (60%)
    b) agree - 4 students (40%)
4. question four
    a) strongly agree - 3 students (30%)
    b) agree - 6 students (60%)
    c) disagree - 1 student (10%)
5. question five
    a) strongly agree - 6 students (60%)
    b) agree - 1 student (10%)
    c) uncertain - 1 student (10%)
    d) disagree - 1 student (10%)
    e) strongly disagree - 1 student (10%)
6. question six
    a) strongly agree - 3 students (30%)
    b) agree - 4 students (40%)
    c) uncertain - 2 students (20%)
    d) disagree - 1 student (10%)

The seventh grade results are based on eleven students answering the questionnaire. These are the findings:

1. question one
    a) strongly agree - 3 students (27%)
    b) agree - 3 students (27%)
    c) uncertain - 2 students (18%)
    d) disagree - 3 students (27%)
2. question two
    a) strongly agree - 4 students (36%)
    b) agree - 4 students (36%)
    c) uncertain - 2 students (18%)
    d) strongly disagree - 1 student (9%)
3. question three
    a) strongly agree - 1 student (9%)
    b) agree - 7 students (64%)
    c) uncertain - 1 student (9%)
    d) strongly disagree - 2 students (18%)
4. question four
    a) strongly agree - 1 student (9%)
    b) agree - 10 students (91%)
5. question five
    a) strongly agree - 2 students (18%)
    b) agree - 7 students (64%)
    c) disagree - 1 student (9%)
    d) strongly disagree - 1 student (9%)

6. question six
   a) strongly agree - 1 student (9%)
   b) agree - 6 students (55%)
   c) uncertain - 2 students (18%)
   d) disagree - 2 students (18%)

The eighth grade results are based on eight students answering the questionnaire. These are the findings:

1. question one
   a) strongly agree - 1 student (13%)
   b) agree - 3 students (38%)
   c) uncertain - 2 students (25%)
   d) disagree - 1 student (13%)
   e) strongly disagree - 1 student (13%)
2. question two
   a) strongly agree - 2 students (25%)
   b) agree - 4 students (50%)
   c) uncertain - 1 student (13%)
   d) disagree - 1 student (13%)
3. question three
   a) strongly agree - 2 students (25%)
   b) agree - 3 students (38%)
   c) uncertain - 2 students (25%)
   d) disagree - 1 student (13%)
4. question four
   a) strongly agree - 2 students (25%)
   b) agree - 6 students (75%)
5. question five
   a) stongly agree - 5 students (63%)
   b) agree - 2 students (25%)
   c) uncertain - 1 student (13%)
6. question six
   a) strongly agree - 2 students (25%)
   b) agree - 4 students (50%)
   c) uncertain - 1 student (13%)
   d) disagree - 1 student (13%)

These results are based on four weeks of student's attitude about themselves in regards to math and their current remedial math program. Only generalities could be drawn from the questionnaire at this time. Therefore, this student attitude questionnaire will be given again in June 1985 for comparisons and attitude change as a result of being in this remedial math program.

Chapter 5

SUMMARY

A. Conclusion: It is hoped that the suggestions and ideas presented will be beneficial in working with remedial math students, as well as the regular classroom students. Care has been taken to avoid any concepts which would appear to assign sole responsibility for the education of the remedial math students to a particular educator.

Educating the remedial math student is a responsibility shared by the regular classroom teacher, the remedial math teacher, the student, and the student's parents. It is hoped that this shared responsibility can be facilitated by improvements in the previously discussed "key" areas of communication and planning.

B. Implications: This project only touches the "tip of the iceberg". Some of the many areas that merit further attention are the following:

1) qualifications of the remedial math teacher
2) training of the teacher before teaching remedial students
3) continuous professional development for the teacher
4) criteria and selection of the teacher
5) available materials to be used

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APPENDIX I

Behavior - Assessment of Students

Behavior Checklist
Teacher's Behavior Evaluation
Teacher Assessment of Student

Goals - Objectives

Goals for Remedial Math
Remedial Math Objectives Checklist
Short Term Social-Emotional Objectives
General Class Time Organization

Reports on Students

Remedial Math Report
Daily Classroom Report
Notes Home
Notes From Your Teacher
Learning Center Progress Report
Chocklist of Student's Progress

Classroom Suggestions

Auditory Learner
Visual Learner
Auditory Learner - Classroom Suggestions
Visual Learner - Classroom Suggestions
Checklist for Learning Difficulties

Conferences

Ideas for Parental Conference
Comments About Children

BEHAVIOR CHECKLIST

Please complete this regarding the student in question and share the results with the remedial math teacher. In judging frequently or not frequently, use your individual standards as compared to what is "normal" for your classroom.

BEHAVIOR OCCURRING	FREQUENTLY	NOT FREQUENTLY
1. out of seat behavior		
2. short attention span		
3. distractible		
4. perseverates on tasks		
5. often alone		
6. fearless		
7. follows directions well		
8. prints/writes poorly		
9. difficulty expressing self in writing		
10. difficulty remembering letters		
11. difficulty remembering words		
12. reversals in written work		
13. miscalls b for d		
14. difficulty with auditory discrimination (hearing differences)		
15. difficulty in blending sounds		
16. difficulty with time concepts		
17. difficulty with money concepts		
18. thinks poorly of self		
19. 'flares-up' quickly		
20. contributes to class discussions		
21. lethargic in class		
22. poor attitude toward school work		
23. lacks motivation toward most tasks		
24. gives inappropriate responses-laughing in a serious discussion		
25. hesitant to try new tasks		
26. relates well with peers		
27. responds best in well-structured situation		
28. good listener		
29. uses and takes care of school materials		
30. follows your room rules		
31. difficulty seeing differences in letters, numbers or words		

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TEACHER'S BEHAVIOR EVALUATION

		0	1	2	3
1.	Uses choice and freedom constructively				
2.	Trusts adults and accepts their directions				
3.	Does not demand unusual attention				
4.	Does not need adult limits and control to maintain stability				
5.	Seems secure in personal worth and rights				
6.	Has a tolerance for frustrations (errors)				
7.	Benefits from construction criticism				
8.	Has a sense of right and wrong that guides his behavior				
9.	Cooperates in and enjoys group work				
10.	Has friends and relates well with other children				
11.	Demonstrates self-control (no temper tantrums)				
12.	Is able to express feelings openly				
13.	Enjoys independent study				
14.	Completes or stays with activities selected by himself				
15.	Completes or stays with activities selected by another				
16.	Helps other people and shows empathy				
17.	Attends school on a regular basis				
18.	Has positive feelings about school and learning				
19.	Sees himself as a contributing member of a group (and society)				

KEY: 0 = Serious deficiency
1 = Spotty growth
2 = Fair control, occasional lapses
3 = No difficulties

TEACHER'S ASSESSMENT OF STUDENT

Middle School Level

Student Name: ____________________

Grade: ____________________ Teacher: ________________________

Date: ____________________ School: ________________________

This form is to be completed prior to an informal discussion with the principal. The more information you can furnish here, the easier it should be to develop a plan of how to proceed with this referral.

Forms do not apply to all students in all situations. Please fill out the items which you have observed. Please feel free to add examples or notes on the back (in the margins).

ASSESSMENT AREAS

	Circle Those That Apply
I. Academic Skills	
A. Math Skills	
1. Counting 1-100	Yes No
2. Knows simple math facts	Yes No
a. Adds one digit numbers	Yes No
b. Subtracts one digit numbers	Yes No
c. Borrows	Yes No
d. Carrys	Yes No
3. Multiplication	Yes No
4. Division	Yes No
5. Story problems	Yes No
6. Fractions	Yes No
7. Decimals	Yes No
Other:	
8. ______________________	Yes No
9. ______________________	Yes No
10. ______________________	Yes No
II. Language Behavior	
A. Language Expression - Oral	
1. Slurred speech	Yes No
2. Pronounces words clearly	Yes No
3. Stutters, stammers	Yes No
4. Uses good grammar	Yes No
5. Expresses ideas clearly	Yes No
Other:	
6. ______________________	Yes No

B. Language Expression - Written
   1. Writes legibly Yes No
   2. Correctly forms letters Yes No
   3. Consistently uses one script Yes No
   4. Uses punctuation effectively Yes No
   5. Can express ideas in writing Yes No

C. Asks Questions In Class Yes No

D. Answers Questions In Class Yes No

E. Understands Oral Discussions Yes No

III. General Cognitive Behavior

A. Reasons In A Logical Manner Yes No

B. Sees Relationships Yes No

C. Has Knowledge Of Current Events Yes No

D. Has Ability To Think Abstractly Yes No

E. Retains Mastered Information Yes No.

F. Learns New Concepts Slowly Average Quickly

IV. Perception

A. Visual Motor
   1. Poor coordination of eyes, hands, large muscles Yes No
   2. Slow in completing tasks Yes No
   3. Clumsy in moving around room Yes No
   4. Difficulty in drawing or tracing Yes No
   5. Trouble in drawing designs & symbols from memory Yes No
   6. Difficulty in copying words from chalkboard Yes No
   7. Letter or word reversals Yes No
   8. Poor spacing and positioning of words on page Yes No
   9. Changes hand in writing or cutting Yes No
   10. Positions paper correctly in writing Yes No

B. Visual
   1. Holds book too close Yes No
   2. Holds book too far away Yes No
   3. Squints Yes No
   4. Red or watering eyes Yes No
   5. Has difficulty seeing blackboard Yes No

C. Gross Motor

1. Lacks muscular strength and endurance Yes No
2. Ususual walking gait Yes No
3. Poor sitting posture Yes No
4. Problems in running Yes No

D. Health

1. Obviously poor physical health Yes No
2. Often appears fatiqued Yes No
3. Dental problems Yes No
4. Poor personal hygiene Yes No
5. Glassy-eyed Yes No

E. Sensory Motor

1. Problems in judging time Yes No
2. Disorganized Yes No
3. Distractible Yes No
4. Poor balance Yes No

F. Auditory

1. Difficulty in following directions Yes No
2. Difficulty repeating words and sentences Yes No
3. Difficulty attending to verbal instructions Yes No
4. Problems in hearing what is said Yes No
5. Often asks for directions to be repeated Yes No

G. Study Skills

1. Short attention span Yes No
2. Completes assignment Yes No
3. Tries hard Yes No
4. Can follow simple directions Yes No
5. Can follow more elaborate direction Yes No
6. Participates in group discussions Yes No
7. Needs little supervision Yes No
8. Quality of work varies Yes No
9. Seems overactive Yes No
10. Seems lethargic Yes No
11. Uses time efficiently Yes No
12. Asks for help from teacher excessively Yes No

V. Relationship With Others

A. Affective

1. Is cooperative with teacher Yes No
2. Is aggressive toward others Yes No
3. Seeks reassurance excessively Yes No
4. Needs encouragement excessively Yes No
5. Is accepted by peers Yes No
6. Teases or provokes others Yes No
7. Is scapegoated by others Yes No
8. Shares Yes No

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9. Accepts suggestions Yes No
10. Accepts criticism Yes No
11. Respects others property Yes No
12. Is a follower Yes No
13. Tries to manipulate others Yes No
14. Withdraws:
    a. From group activities Yes No
    b. From immediate situations Yes No
15. Low self-concept or self-image Yes No

B. Behavior

1. Can handle changes in routine Yes No
2. Shows good self-control Yes No
3. Is courteous Yes No
4. Is impulsive Yes No
5. Appears happy Yes No
6. Has temper tantrums Yes No
7. Shows excessive anger Yes No
8. Is moody Yes No
9. Gives up easily Yes No
10. Accepts responsibility Yes No
11. Is fearful Yes No
12. Is disruptive Yes No
13. Cries often or easily Yes No
14. Explosive and unpredictable behaviors Yes No
15. Tends to tell wild or untrue stories Yes No
16. Destructive Yes No
17. Lies Yes No
18. Steals Yes No
19. Difficulty in judging right and wrong Yes No
20 Cannot predict consequences of personal behavior (reduced problem solving skills) Yes No
21. Appears nervous Yes No
22. Excessive daydreaming Yes No
23. Over-conforming Yes No

GOALS FOR REMEDIAL MATH 1984-1985

The special math program is a supplemental class to the student's regular math class. Each student will then have at least two forty minute math classes of intense individual instruction preparing each student to get caught up to their actual grade level. **MAIN GOAL:** To get each student prepared to be able to do their own basic grade level math work in the regular math class with an average grade or better.

GOALS BROKEN DOWN INTO YEARS OF STUDY:

These goals are what can generally be covered from one year to another. The pace of work covered is still set on an individual basis by the drives and determination to better themselves.

1. First year in the program
    a. master addition
    b. master subtraction
    c. Introduction to major units
        1. money
        2. telling time
        3. number concepts
        4. measurements

2. Second year in program
    a. review of addition and subtraction
    b. master multiplication
    c. master division
    d. practice the major units
        1. money
        2. telling time
        3. number concepts - place value
        4. measurement

3. Third year in the program
    a. review addition, subtraction, multiplication and division
    b. master fractions
    c. master the major units
        1. money
        2. telling time
        3. number concepts
        4. measurements

GENERAL CLASS TIME ORGANIZATION

MONDAY THROUGH THURSDAY: Individual programs working on basic math operations.

THURSDAY: Homework assignments and quiz day when the need occurs.

FRIDAY: Earned Game Day.

- First nine weeks to earn game day each student must learn one set of the multiplication table each week with 100% accuracy. (0's - 9's)
- other three nine weeks to earn game day each student must have three in class assignments and one homework assignment completed by Friday.

Individual programs are based on the Michigan math objectives. For the objectives, please see individual file on each students diagnostic program.

GENERAL CLASS SET UP

5 MINUTES	Use for greeting, roll, and directions.
5-20 MINUTES	Possible Board questions: One to twenty questions used for spot checking, review, and drill practice. This is set up so the students answer the questions on scrap paper, turn it in, and then go on to individual work programs on their own. If no questions are on the board, then the students start to work on their own program the first part of class.
20-30 MINUTES	Time for individual work in textbook or a specially prepared ditto.
10 MINUTES	Possible GROUP activity This time is to be earned and to be a fun activity dealing with math. (Example: flashcard drills etc.)

MAJOR UNITS

Most of the general units will consist of a PRETEST. The only students that will be covering the units are those who have difficulty in these areas. The units are developed into stations according to the objectives. Each station is designed so that the material ranges in degrees of difficulty. Some students will work through all the stations and other students will continue working on their individual basic math programs until the class covers the objective or a unit that needs more practice.

AUG.-SEPT.

1. Give math inventory to begin writing the individual programs and the objective for each student.
2. Start program on learning multiplication table.
    a. Practice Mon. - Thur.
    b. Friday is the test. If each can answer a set of ten questions in 90 seconds with 100% accuracy the student

will be allowed to have game day. If the student failed to learn the set of questions he must continue with his regular class work.

c. Sept. will practice the 0's through 3's.

3. Unit on NUMBER CONCEPTS (3 weeks)
   a. numbers - before and after (p. 10 #45)
   b. ordering of numbers (p. 15 #80, #81)
   c. place value (p. 16 #87)
   d. reading numbers (p. 16 #88)
   e. writing numbers (p. 16 #89)
   f. expanded notation (p. 17 #90)
   g. commas (p. 17 #91)
   h. roman numeral (1-25) (p. 17 #92)

OCT.

1. Practice multiplication table
   a. Oct. will practice 4's through 7's
2. Unit on TELLING TIME - CLOCKS
   a. facts (p. 82 #1, #2, #7, #9, etc)
   b. telling time hour to minutes (p. 82 #8)
   c. writing time (hour to minutes) (p. 83 #10)
   d. A.M. - P.M. (p. 83 #11, #12, #13)
   e. conversion (p. 83 #12)

NOV.

1. Practice multiplication table
   a. Nov. will practice 8's - 9's
2. Give California Achievement test (3-4 days)
3. Start objective of simple games sheets for homework every Thursday.
   -teaches responsibility
   -teaches independent thinking and work
   -another source of practice and review
   -set of rewards for success of week's accomplishments by earning game day.
   -GAME DAY:
      -Students of this program are from culturally deprived families.
      Games day allows these students time to use and do many things these households will never have. (Example: puzzles, crayons, building materials, and preception materials)
      -Game day also reinforces the social aspect: sharing, fair play, good sportsmanship, and development of their leadership in a group.
4. Graphing for Thanksgiving (5 days)

DEC.

1. Liquid measurement unit (5 days)
    a. facts (p. 83 #5, #6, p. 89 #4)
    b. conversion (p. 89 #1, #2)
    c. practical application
       -Bake sale of project
2. Money unit in newspaper (5 days)
    a. Shopping for Christmas

JAN.

1. Unit on MONEY. (4-5 weeks) This unit will be done mostly on a one-to-one basis consisting of objective c.
    a. facts (p. 84 #4)
    b. writing money (p. 84 #5)
    c. making change (p. 84 #6, p. 85 #10)

FEB.

1. Unit on measurement (3 weeks)
    a. measure (p. 73 #5, #9, #10)
    b. conversion (p. 73 #6, p. 74 #11, #12,#16)
    c. computation (p. 74 #13)

MARCH

1. Unit on MAPS or GRAPHS (2 weeks)
    a. objectives will be developed later
2. Unit on USE OF A CALCULATOR (2 weeks)
    a. use individual work to show how to best use calculator for everyday living math

APRIL

1. Decimal unit (2 weeks)
    a. add, subtract, multiply, and divide
2. Diagnostic testing
    a. Inventory skills check
    b. California Achievement test

MAY

1. BOWLING (3-4 weeks) To be developed more fully later.
    a. learn to score - uses good review of math skills
    b. practice bowling outside with bowling set
    c. field trip to bowling alley
2. Exams

CHECKLIST OF CLASS OBJECTIVES - REMEDIAL MATH

STUDENT_______________GRADE____DATE________TEACHER_______________

ADDITION	Mastered	Working On	Cannot Retain	Has Not Practiced
1. Add two one-digit numbers (basic facts)				
2. Add three numbers that product a sum less then ten.				
3 Add three one-digit numbers whose sum is ten or more.				
4. Add two numbers up to two digits each (no carrying).				
5. Add two numbers with carrying into the ten's place.				
6. Add two numbers with carrying into the hundred's place.				
7. Add two numbers with carrying into the ten's and hundred's places.				
8. Add more than two numbers with carrying into both the ten's and hundred's place.				
9. Add numbers of more than three digits with carrying all the way.				

SUBTRACTION

10. Subtract one-digit numbers (basic facts).				
11. Subtract two-digit numbers without borrowing.				
12. Subtract three-digit numbers without borrowing.				
13. Subtract two-digit and three digit numbers where the tens only are regrouped.				
14. Subtract three-digit numbers where the hundreds only are regrouped.				
15. Subtract four-digit numbers where the hundreds are regrouped.				
16. Subtract three-digit numbers where both the tens and hundreds are regrouped.				
17. Subtract four-digit numbers where both the tens and hundreds are regrouped.				
18. Subtract four and five-digit numbers borrowing in all.				
19. Subtract four-digit numbers with minuend having zeros in the one's, ten's, and hundreds' place.				

MULTIPLICATION

		Mastered	Working On	Cannot Retain	Has Not Practiced
20.	Multiply two one-digit numbers.				
21.	Multiply a number by a one-digit number (no carrying).				
22.	Multiply a number by a one-digit number, with carrying into ten's and hundred's place.				
23.	Multiply a two-digit number by a one-digit number with carrying into the ten's and hundred's place.				
24.	Multiply a one-digit number with carrying into ten's, hundred's and thousand's place, etc.				
25.	Multiply with multiples of ten (introducing zero as a place holder).				
26.	Multiply with multiples of one hundred.				
27.	Multiply with multiples of one thousand.				
28.	Multiply a two-digit number by a two-digit number.				
29.	Multiply a number by a two-digit number.				
30.	Multiply a three-digit number by a three-digit number.				

DIVISION

31.	Divide a two-digit number by a one-digit number with a one-digit number in the quotient, no remainder.				
32.	Divide a two-digit number by a one-digit number with a two-digit number in the quotient, no remainder.				
33.	Divide a three-digit number by a one-digit number, no remainder.				
34.	Divide a number up to four digits by a one-digit number, with remainder.				
35.	Divide a number up to four digits by a two-digit number, no remainder.				
36.	Divide a number up to four digits by a two-digit number, no remainder.				

DECIMALS

37.	Addition with decimals (carrying).				
38.	Subtraction with decimals (borrowing).				
39.	Multiplication with decimals.				
40.	Division with decimals.				

CLOCKS (Oral check performance)

	Mastered	Working On	Cannot Retain	Has Not Practiced
41. Tell the minute hand and the hour hand				
42. Demonstrate hour on the clock when given a time				
43. Demonstrate half hour on clock when given a time.				
44. Demonstrate the quarters on clock when given a time.				
45. Demonstrate minutes on clock when given a time.				
46. Tell how many minutes in an hour.				
47. Tell how many hours in a day.				
48. Tell how many seconds in a minute.				

MONEY (Oral check performance)

49. Demonstrate they know the name of each coin according to the physical difference.				
50. Make change from one dollar when given a specific amount.				
51. Make change from five dollars when given a specific amount.				
52. Make change from ten dollars when given a specific amount.				

MEASUREMENT (Oral check performance)

53. Tell the difference in ¼ inch, ½ inch, and one inch on the ruler.				
54. Tell how many inches in a foot.				
55. Tell how many feet in a yard.				
56. Tell how many inches in a yard.				
57. Measure a given object with 100% accuracy.				

FRACTIONS

58. Describe and demonstrate, by means of a model, the meaning of numerator and denominator.				
59. Represent the number 'one' in form of a fraction.				
60. Write consecutive multiples of a number.				
61. Find the greatest common factor of two or more numbers.				
62. Change fractions to higher terms or lower terms				
63. Find the least common denominator for two or more fractions.				
64. Rename mixed numbers and improper fractions.				
65. Add fractions with like denominators				

	Mastered	Working On	Cannot Retain	Has Not Practiced
66. Add mixed numbers with like denominators, (no regrouping).				
67. Add mixed numbers with like denominators, (with borrowing).				
68. Add fractions with unlike denominators.				
69. Add mixed numbers with unlike denominators.				
70. Subtract fractions with like denominators.				
71. Subtract a fraction or a mixed number from a whole number.				
72. Subtract mixed numbers with like denominators (no regrouping).				
73. Subtract mixed numbers with like denomonators (with regrouping).				
74. Subtract fractions with unlike denominators.				
75. Subtract mixed numbers with unlike denominators				
76. Multiply unit fractions.				
77. Multiply fractions with numerators greater than one.				
78. Multiply a whole number and a fraction.				
79. Multiply a mixed number and a fraction.				
80. Multiply a mixed number or a whole number by a mixed number.				
81. Divide a whole number by a unit fraction.				
82. Divide a whole number by a fraction.				
83. Divide a mixed number by a fraction.				
84. Divide a mixed number by a fraction.				
85. Divide a fraction or a mixed number by a whole number.				
86. Divide a mixed number or a whole number by a mixed number.				

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CHECKLIST OF SHORT TERM SOCIAL-EMOTIONAL OBJECTIVES

I. Work Habits

_____ Student paces self to do complete task on time.
_____ Student completes task accurately.
_____ Task completed neatly or in neat order.
_____ Student takes care of class material, etc.
_____ Student comes prepared for class.
_____ Student will try to find errors. (check over)
_____ Student will correct told errors. (graded papers)
_____ Student will try task first without assistance.
_____ Student will ask for help instead of guessing.
_____ Student acts appropriately during unstructured time.
_____ Student will do tasks without rewards for one week.
_____ Student will follow given direction.

II. Relationship

_____ Student can handle constructive criticism.
_____ Student knows acceptable and/or unacceptable language.
_____ Student knows acceptable and/or unacceptable behavior.
_____ Student will tell inappropriate behavior after behaving in an inappropriate way.
_____ Student will acknowledge his inappropriate behavior.
_____ Student will show cooperation in work and play
_____ Student will display anger in acceptable manner.
_____ Student will make complimentary statements.
_____ Student knows different types of emotions.
_____ Student will listen without interrupting.
_____ Student will use assertive behavior to resist peer pressure.
_____ Student will respond to positive and negative cues.
_____ Student will be able to socialize positively.
_____ Student will stop unacceptable behavior when pressured by peers.
_____ Student will show respect for other people's property.
_____ Student will use considerate behavior.

III. Environment

_____ Student will set some goals for self
_____ Student will tell three consequences for breaking rules or laws.
_____ Student will get to class on time.
_____ Student will follow school rules.
_____ Student will be able to tell real from imagined.

IV. Self

_____ Student will use appropriate dress.
_____ Student will have acceptable personal appearance.

GENERAL CLASSROOM REPORT

CLASSROOM ORGANIZATION

VARY GROUPING ARRANGEMENTS
- -large group instruction
- -small group instruction
- -individual instruction
- -peer tutoring
- -self-instructional activities
- -learning centers

VARY METHODS OF INSTRUCTION
- -teacher directed
- -student directed

CLASSROOM MANAGEMENT

VARY GRADING SYSTEM
- -homework
- -tests
- -class discussion
- -special projects

VARY REINFORCEMENT
- -praise
- -notes sent home
- -grades
- -free time
- -special activity
- -tangibles
- -progress charts

VARY RULES
- -differentiated for some students
- -explicit/implicit

METHODS OF PRESENTATION

VARY CONTENT
- -amount to be learned
- -time to learn new information
- -conceptual level

VARY GENERAL STRUCTURE
- -advanced organizers
- -previewing questions
- -cues, mneumonic devices
- -provide immediate feedback
- -involve students actively

VARY TYPE
- -verbal-lecture discussion
- -written-texts, worksheets
- -demonstrations
- -audio-visuals
- -tape recorders
- -filmstrips
- -movies
- -opaque projectors
- -transparencies

METHODS OF PRACTICE

VARY GENERAL STRUCTURE
- -amount to be practiced
- -time for practice
- -group/individual
- -teacher directed/independent
- -items ranging from easy to difficult

VARY LEVEL OF RESPONSE
- -copying
- -recognition
- -recall with cues
- -recall without cues

VARY TYPE OF MATERIALS
- -worksheets
- -texts
- -audio-visual equipment

METHODS OF TESTING

VARY TYPE
- -verbal
- -written
- -demonstration

VARY GENERAL STRUCTURE
- -group/individual
- -amount to be tested
- -time for completion

VARY LEVEL OF RESPONSE
- -recognition
- -recall with cues

REALISTIC ALTERNATIVES FOR A REMEDIAL MATH TEACHER FOR PLANNING

REMEDIAL MATH REPORT

Remedial Math Student: ____________________

Classroom Teacher: ____________________

Date: ____________________

Regarding your above-named Remedial Math Student, please answer the following questions according to your best professional judgment.

		YES	SOMETIMES	NO
1.	Answers questions in class discussions			
2.	Volunteers appropriate information in class discussions			
3.	Socializes appropriately with non-handicapped peers			
4.	Demonstrates appropriate in-room behaviors			
5.	Follows directions: oral			
	written			
6	Completes work of his/her ability within the prescribed time limit			
7.	Locates, uses, and returns room materials			
8.	Listens in class			
9.	Asks for help when needed			
10.	Follows your class rules			
11.	Attends to work			

ADDITIONAL COMMENTS:

If materials or additional information regarding this student are needed, please list your need in the following space.

DAILY CLASSROOM REPORT

Student: ______________________ Class: ________________________

Date: ______________________

	YES	NO
I followed directions in class.		
I worked quietly during work time.		
I completed my work.		
I worked well with the teacher and the other students		
I have work to finish - write in the assignment.		

Teacher Signature: ____________________________

COMMENTS:

* If the student was switching classes, or if more than one report was needed to be done, this could be made up with four sections per page.

NOTES HOME

Home Report

Student: ______________________ Class: ______________________

Date: ______________________

My day at school was

Comments:

Teacher Signature: ______________________________

Please sign and return
this note tomorrow. ______________________________
Parent

- -

Home Report

Student: ______________________ Class: ______________________

Date: ______________________

	YES	NO
I followed directions at school		
I listened well at school.		
I worked quietly during work time		
I got along well with my teacher and the other students.		

I have to finish the following work:

Comments:

Teacher Signature: ___________________________

Please sign and return
this note tomorrow. ______________________________
Parent

A NOTE FROM YOUR TEACHER

		did this very well today	O.K.	needs to improve today
1.	You listened to directions			
2.	You remembered what you were to do.			
3.	You came to class on time.			
4.	You got right to work when you came in the room.			
5.	You had pencil and paper			
6.	You did a good job on your work.			
7.	You were helpful to someone else			
8.	You handled your problems the right way.			
9.	You were able to finish your work.			
10	You said only nice things to others.			
11.	You made some good decisions.			
12.	You took care of your things at the end of classtime.			
13.	You were able to talk quietly.			
14.	You were neat and tidy.			

LEARNING CENTER WEEKLY PROGRESS NOTE

Student ____________________

Reading assignments done Yes___No___Comments____________

Math assignments done Yes___No___Comments____________

Spelling assignments done Yes___No___Comments____________

Handwriting assignment done Yes___No___Comments____________

A few areas your child needs to work on next week.

- ___ Coming to school everyday
- ___ Neat appearance
- ___ Works steadily
- ___ Being respectful to people and property
- ___ Not interrupting or blurting out
- ___ Getting to class on time
- ___ Using self-control when upset
- ___ Getting along with others
- ___ Saying only nice things to others
- ___ Completing assignments
- ___ Listened to directions
- ___ Not being distracted easily
- ___ Needs to be willing to school rules
- ___ Accepting helpful criticism
- ___ Taking care of classroom materials
- ___ Working by himself/herself
- ___ Use work time for completing assignments
- ___ Put name and date, etc. on assignments
- ___ Use complete sentences when talking
- ___ Work needs to be neater

A few areas that your child has improved or accomplished this week.

- ___ Listened to the directions
- ___ Tried task first without assistance
- ___ Helpful to others
- ___ Used good work habits
- ___ Followed directions
- ___ Came to class prepared
- ___ Very dependable and responsible
- ___ Tried to do what was expected
- ___ Showed interest in learning
- ___ Used time wisely and completed work
- ___ Made some good decisions
- ___ Used quiet voice when talking
- ___ Got along well with others
- ___ A pleasure to have in class
- ___ Came to class on time
- ___ Had a good attitude
- ___ Gained more self-confidence
- ___ Quality of work has improved
- ___ Shows pride in his/her work
- ___ Seems eager to improve
- ___ Was cooperative and happy
- ___ Comprehends well, but works to slowly

___ Use quiet voice when talking

___ Follow room rules of staying in seat

___ Get progress note back on time

___ Turn weekend homework in on time

___ Others:_______________ ___ Others:_______________

Please tear off this bottom part and return it tomorrow. Thank you for your support.

LEARNING CENTER PROGRESS NOTE

______________________________ Parent Signature

______________________________ Date

Comments:

____

CHECKLIST OF STUDENT'S PROGRESS

Name of Student______________ Date_______ Class_______ Teacher_____________

___ regular class program
___ individualized program within this class at student's level.

ACADEMICS AND WORK HABITS:

		Good	Fair	Needs Improvement
1. Listens to and tries to follow directions	1.			
2. Completes assignments in the allotted time	2.			
3. Working to full capability	3.			
4. Attends to task	4.			
5. Works independently	5.			
6. Has developed good work or study habits	6.			
7. Appearance of work handed in	7.			
8. Quality of work	8.			
9. Making steady progress academically	9.			
10. Uses time wisely in classroom	10.			
11. Is a courteous worker	11.			
12. Participates in classroom activities	12.			
13. Shows attitude about trying to improve	13.			
14. Copying from board or from book	14.			
15. Handwriting	15.			

SOCIAL AND PHYSICAL DEVELOPMENT:

		Good	Fair	Needs Improvement
1. Respects viewpoint of others	1.			
2. Respects authority	2.			
3. Respects other people's property	3.			
4. Gets along with others	4.			
5. Practices socially acceptable behavior	5.			
6. Handles responsibilities	6.			
7. Uses self-control and self-discipline	7.			
8. Is co-operative and helpful	8.			
9. Is pleasant and friendly	9.			
10. Attitude towards school	10.			
11. Handles daily school routines	11.			

		Good	Fair	Needs Improvement
12. School attendance	12.			
13. Promptness to class	13.			
14. Handles daily frustrations	14.			
15. Physical appearance in school	15.			
16. Motor co-ordination	16.			
17. Fine motor skills	17.			

WRITTEN COMMENTS:

THE AUDITORY LEARNER

Classroom Clues

An auditory learner has trouble with
visual and manual information.

Student's Name ______________________________
Total # Checked ________________

Check each statement which describes the student.

1. Attention to visual tasks may be poor
2. Seems bored or restless during silent filmstrips.
3. Attends more to the sound than to the screen during films shown in class.
4. Handwriting is poor.
5. Drawing or other artwork is poor, and doesn't enjoy art activities.
6. Work copied from the board may often turn out badly.
7. May have reversals or inversions in writing, or may leave out whole words or parts of words.
8. Might prefer word games, riddles, and noisy or active toys and games to more visually oriented games like checkers, other board games, or jigsaw or crossword puzzles.
9. May rub eyes or show other signs of eye problems or complain that eyes hurt..
10. May do poorly on written spelling work, but may be a better speller in spelling "bees".
11. May not remember much of what has been read, and does better on material discussed in class.
12. May read below grade level, or below the level expected for general ability.
13. Comprehension is probably better on oral reading than on silent reading.
14. Math errors, carefully analyzed, may show consistent patterns: in-attention to signs, confusion of similar numerals, etc.
15. May not seem to observe things other children comment on: new bulletin board displays, a broken window or teacher's new shirt.
16. May do poorly on map activities.
17. May do poorly on sight words and flashcard drills.
18. May be poor at visual word attack: the student confuses words which look similar, such as bill, bell, and ball.
19. May do poorly on matching activities, expecially where a series of lines must be drawn from one column to another.
20. Probably dislikes "ditto" activities, but given the chance, will sort out the clearest copy.

21. May often skip words or even whole lines in reading, and uses finger as a "pointer" whenever possible. ____
22. May enjoy memory work. ____
23. May be a "mumbler", muttering or whispering during silent reading or other quiet seat work or may also whistle or hum without being aware of it, rather than "doodling" on scratch paper. ____
24. May have trouble identifying "how many?" without counting. ____
25. Seems brighter than IQ test scores or achievement scores would lead you to believe - "talks a good game". ____
26. Papers are probably poorly organized; often writes the answer in the wrong blank on workbook pages, or can't find where the answers go. ____
27. May seem lost on material requiring a separate answer sheet. ____
28. Has trouble locating words in the dictionary or index. ____
29. Usually, spelling errors "make sense" in that the child spells the word the way it sounds: meen for mean, etc. ____
30. May have trouble numbering a paper in sequence. ____
31. Has trouble telling time. ____

THE VISUAL LEARNER

Classroom Clues
A visual learner has trouble with
auditory and verbal information

Student's Name ____________________
Total # Checked ____________________

Check each statement which describes the student.

1. May seem to ignore verbal directions. ____
2. Questions or instructions must often be repeated, frequently in different words. ____
3. May frequently have "blank" expression or may seem to be daydreaming during classes which are primarily verbal. ____
4. May substitute gestures for words, or may seem, by gestures, to be literally groping for a word. ____
5. May have poor speech, in terms of either low vocabulary, poor flexibility of vocal patterns, or articulation. ____
6. May watch the teacher's lips closely, and may be distressed when the teacher's face cannot be seen, such as talking while writing on the blackboard, or discussing a filmstrip in a darkened room. ____
7. Often looks to see what everyone else is doing before following instructions. ____
8. May play the TV, tape, or record player too loudly. ____
9. May often say "What?" or "Huh?". ____
10. Seems to frequently misunderstand . ____
11. Often speaks too loudly, though may dislike speaking before the group or listening to others. ____
12. Prefers the "Show" aspects of "Show and Tell", and prefers filmstrips to tapes. ____
13. May have trouble discriminating between similar words or sounds : Bill, bell, bull and ball may all sound the same, and the student certainly cannot discriminate pin from pen. ____
14. May do poorly in phonics-based activities. ____
15. Frequently can't remember information given verbally. ____
16. May describe things in terms of visual stimuli, and omit auditory descriptive material. ____
17. Prefers visual games, such as board games, or active games and toys, to those which involve listening or speaking. ____
18. Speech may be inappropriate for the age; or may not have learned the language patterns of his/her home (even if the home patterns are not Standard American English). ____
19. May have trouble associating sounds and objects. ____
20. May substitute words similar in sound or meaning for one another. ____

21. Seems to know few words, synonyms commonly known by children of a given age or ability level. ____
22. May "get lost" in rote verbalizations, even the alphabet, rote counting, or memorizing times tables. ____
23. May not enjoy music as much as art work. ____
24. May have a speech defect, and if so, it is probably an articulation problem. ____
25. May respond less rapidly than peers to unusual sounds: a far-off siren; a record player or musical instrument in a nearby classroom. ____
26. May do better work when it is demonstrated, not given verbally. ____
27. Doesn't seem as bright as test scores indicate. ____
28. May be unable to explain in words many complex tasks he/she is able to do, such as repairing bicycle, taking apart a clock, etc. ____
29. Often answers with a simple yes or no, rarely using complex sentences. ____
30. Can look up a word in the dictionary fairly quickly if the spelling is available, though might have to recite half the alphabet to find the right sections; but is completely lost when required to look it up in order to determine the spelling. ____

AUDITORY LEARNER

Auditory Learning Methods

Classroom Suggestions

Present information verbally and request verbal information as often as possible to emphasize the auditory learning method.

1. Shorten written assignments
2. Allow students to take tests orally.
3. Lecture instruction is used as much as possible.
4. Alternate written assignments with non-written types of instruction.
5. Read the directions to students whenever possible.
6. Fold paper or section it off to aid in spacing.
7. Use dittos to limit the amount of copying from the board.
8. Allow student to use a typewriter.
9. Allow student to answer questions on a tape recorder.
10. Student listens to the book being read by another student or to a tape recording of the book.
11. Interviews or discussions can be used to gain information.
12. Community visitations with oral reports can be used to gain information.
13. Condensed books and activity books can be used.
14. Use verbal drills and recitiations in study or test reviews.
15. When visual demonstrations are used, the student may need a description of it to comprehend the concept.
16. Student can dictate to another student.
17. A language master can be useful.
18. Use brief outlines, illustrations, and diagrams.
19. Student may prefer group work where he/she can talk out ideas and information.

VISUAL LEARNER

Visual Learning Methods

Classroom Suggestions

1. Use a visual presentation with auditory instructions.
2. Outline the lecture on the board and write reminders of instructions or homework assignments on the board.
3. Have student repeat what the teacher said.
4. Use manipulative objects for problem solving - i.e. maps, diagrams, cuisinaire rods, abacus, photographs, cards, etc.
5. Encourage student to write down all math work.
6. Provide textbooks, references, pictures, charts whenever possible.
7. Copying or typing outlines and key information will enhance learning.
8. Flash card review is useful - it can be timed for self-competition.
9. Give only one verbal assignment or direction at a time.
10. Encourage student to look at you when you are talking or demonstrating.
11. Student may prefer quiet individual work rather than group work or discussion.
12. Films, slides and filmstrips are useful even if there is no sound.
13. A language master can be used.

A CHECKLIST FOR LEARNING DIFFICULTIES

If this is the pupil's problem → The teacher should do this ↓	Learns slowly	Thinks he knows it all	Seems overly time	Wastes time	Seems overly aggressive	Appears antagonistic	Learns rapidly	Finds fault	Likes to rough house	Courts undue favors	Stalls or procrastinates	Tries to dominate	Fails to pay attention
A. Provide less work	A												
B. Provide more work		B			B		B		B	B		B	
C. Give more individual instruction	C		C	C									
D. Be patient in correcting mistakes	D		D										
E. Give no chance to dodge responsibility		E	E	E		E	E	E	E	E	E		E
F. Rigidly check student work		F		F	F			F	F	F	F	F	F
G. Let student know what is expected of him		G		G		G		G	G	G	G	G	G
H. Determine validity of grievances						H		H					
I. Change group with which working	I			I					I			I	
J. Give student more responsibility				J	J	J	J	J	J		J		J
K. Give more difficult assignments		K			K		K		K				
L. Require student to prove ability		L						L		L		L	
M. Have student work alone				M			M		M			M	M
N. Have student work with others			N			N				N			
O. Keep student informed of his his progress		O		O							O		O
P. Tell student why record is poor			P	P		P		P			P		P
Q. Check activities at first occurrence				Q				Q	Q	Q	Q	Q	
R. Have personal talk with student		R	R	R		R		R	R		R		R

IDEAS FOR PARENTAL CONFERENCE

1. Put the parents at ease. Discuss a neutral topic to start the conference.

2. Begin by telling the parents all the areas in which the child does well. Make sure they realize the child has areas of strength.

3. Ask them if they have any questions, as this may open up the area of difficulty without your initiating it.

4. Be as diplomatic as possible, while still being realistic. State student's difficulty in clear objective terms. Example: If the student has a reading problem, tell them the student's reading level in contrast to what it should be for his grade.

5. Discuss the methods that you have employed in working with their child. This lets parents know that different strategies have been used.

6. If possible, have examples of the student's work. This makes it easier for parents to see and understand exactly what the difficulties are.

7. Avoid using professions 'jargon'. Use everyday language that the parent will understand. Many times, use of the more formal language will intimidate parents and actually block successful communication.

8. If the conference is one to suggest formal evaluation, explain carefully that evaluation does not mean remedial math placement. Evaluation allows the school personnel to have a more clear understanding of the child's areas of strength and weakness.

9. Encourage the parent to ask any questions they may have. Make sure they feel the school and its personnel are available to them at any time they may have questions or concerns.

10. Assure the parent that their child's progress is closely monitored.

11. End your meeting on a positive note. Express your thanks for the parental interest, concern and involvement in the student.

12. If you have other mainstreamed students, you may want to mention this to the parent so they feel that their child is not singled out.

COMMENTS ABOUT CHILDREN

POSITIVE

affectionate, expressive, dependable, appealing, accepts responsibility, reliable, exuberant, has initiative, imaginative, enthusiastic, cooperative, long attention span, cheerful, eager, appreciative, friendly, follows directions, clever, helpful, uses time well, good follower, honest, willing, has leadership ability, obedient, capable, good self-control, kind, loving, gives constructive criticism, industrious, likeable, energetic, self-directed, volunteers, quick, considerate of others, quiet, sensitive, skilled, good sense of humor, well-mannered, gets along well with others, polite, popular, fair minded, nice, even-tempered, confident, gentle, interested, concerned with others, attentive, listens well, thoughtful, good retention of ideas, attractive, calm, tidy, strong, grasps ideas quickly, neat, smiles, creative, precise, mature, participates, accurate, has a variety of interests, poised, happy, asks questions, improving, respectful, curious, observant, joyful.

NEGATIVE

selfish, immature, poor temper, tense, argues, fearful, thinks mostly of self, lazy, daydreams, tardy, needs prodding, needs directions repeated, tired, cries, slow, easily hurt, frightened, talkative, needs constant assurance, interrupts, requires extra help, unsure, loud, uncooperative, disrespectful, rude, timid, lacks confidence, whispers, too easily led by others, inattentive, disruptive, stubborn, easily distracted, placid, loiters, does not change activities well, avoids responsibility, delays, inaccurate, mischievious, destructive, boisterous, below average, complaining, moody, lacks self-control, short attention span, cannot see weaknesses, doesn't get along well with others, aggressive, nervous, wastes time, inflexible.

NEGATIVE EXPRESSIONS	POSITIVE EXPRESSIONS
must	should
lazy	can do more when trying
trouble maker	should learn to work with others
below average	working at his/her own level
unclean	poor hygiene habits
disinterested	complacent
stubborn	insists on having own way
wastes time	could make better use of time
sloppy	could be neater
selfish	seldom shares with others
show-off	seeks attention
rude	inconsiderate of others
cheats	depends on others to do his/her work

APPENDIX II

Data Collections

Student Attitude Questionnaire
Individual CTBS NCE Results
Individual CTBS Profile Sheet
Class CTBS Profile Sheet
Attitude Checklist

Name: ______________________________ Grade: ______________________

Age: ______________ Boy: ______________ Girl: __________________

Key:

Strongly Agree	SA
Agree	A
Uncertain	U
Disagree	D
Strongly Disagree	SD

1. I give up easily when working with math that seems hard for me. (SA) (A) (U) (D) (SD)
2. I feel I can do math better since I have been in remedial math. (SA) (A) (U) (D) (SD)
3. I am more willing to try math problems after being in remedial math. (SA) (A) (U) (D) (SD)
4. I am more confident in working math problems when I feel I know my basic skills and facts. (SA) (A) (U) (D) (SD)
5. I feel better asking questions about a problem in remedial math than in my regular class. (SA) (A) (U) (D) (SD)
6. I feel better about myself in regards to math because of remedial math. (SA) (A) (U) (D) (SD)

CTBS TEST - COMPREHENSIVE TEST OF BASIC SKILLS

Level G - 5-6th
Level H - 7-8th

	Computation	Concept and Problem	Total Math Level	Grade level your child should have
Number of Questions	☐	☐	☐	
Number of questions answered correctly	☐	☐	☐	
Grade Level	☐	☐	☐	☐ *

	99	--	----	----	--
	98	--	----	----	--
	97	--	----	----	--
	96	--	----	----	--
	95	--	----	----	--
	90	--	----	----	--
	85	--	----	----	--
	80	--	----	----	--
	75	--	----	----	--
	70	--	----	----	--
	55	--	----	----	--
Average Student	50	—	—	—	—
	45	--	----	----	--
	40	--	----	----	--
	35	--	----	----	--
	30	--	----	----	--
	25	--	----	----	--
	20	--	----	----	--
	15	--	----	----	--
	10	--	----	----	--
	5	--	----	----	--
	4	--	----	----	--
	3	--	----	----	--
	2	--	----	----	--
	1	--	----	----	--

NAME ________________________

Test sections:

COMPUTATION - These questions cover addition, subtraction, multiplication, division, and fractions.

CONCEPTS AND PROBLEMS - These questions cover math terms and story problems.

TOTAL MATH LEVEL - This just gives you an idea of what level your child could perform at given similar math questions. The grade level means what year and what month of school work your child can do.

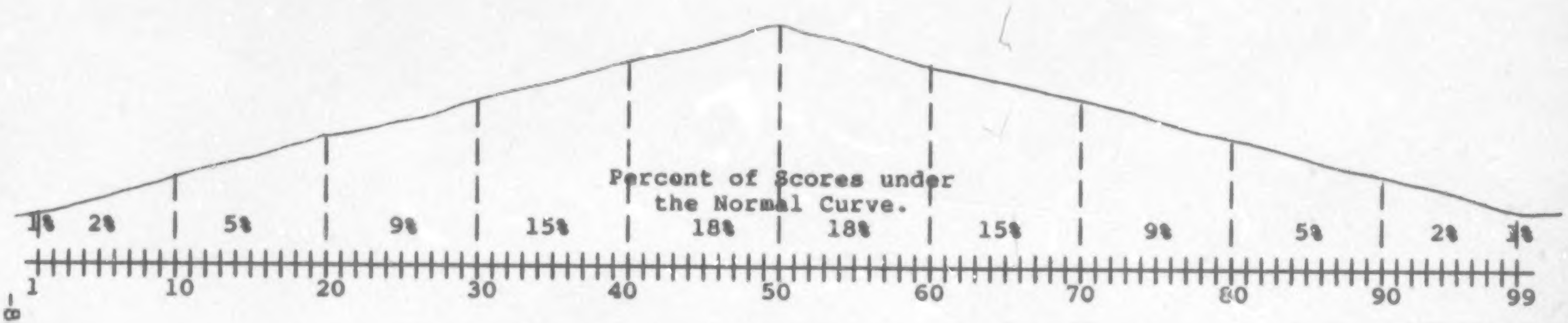
Example: 4.6 = 4th grade
6th month

COMMENTS ON TOTAL MATH SCORE:

____

Key:
- 9 - Highest level
- 8 - High level
- 7 - Well above average
- 6 - Slightly above average
- 5 - Average
- 4 - Slightly below average
- 3 - Well below average
- 2 - Low level
- 1 - Lowest level

COMPREHENSIVE TEST OF BASIC SKILLS (CTBS)
Level G 5-6th, Level H 7-8th
(Math Section)



NORMAL CURVE EQUIVALENTS (NCES)

Student ______________________

Date ______________________

Test: Computation ______________ NCES ______________ Grade Level

Concepts and Problems ______________ NCES ______________ Grade Level

TOTAL ______________ NCES ______________ Grade Level

COMPREHENSIVE TEST OF BASIC SKILLS (CTBS)
Level G - 5 & 6th
Level H - 7 & 8th

PROFILE SHEET

NAME	GRADE LEVEL			PERCENTILE			STANINE			NCE*			
	Compu.	Concept & Problem	TOTAL	Compu.	Concept & Problem	TOTAL	Compu.	Concept & Problem	TOTAL	Compu.	Concept & Problem	TOTAL	DATE

STANINE KEY:

#9 Highest Level
#5 Average
#4 Slightly Below Average
#3 Well Below Average
#2 Low Level
#1 Lowest Level

ATTITUDE CHECKLIST

Name: ____________________

Date: ____________________

Key: VG = Very Good
G = Good
S = Satisfactory
SP = Slow Progress
U = Unsatisfactory

MENTAL DEVELOPMENT

		GRADE	COMMENTS
1. Takes part in informal conversation.	1.		
2. Thinks and solves own problems	2.		
3. Displays good work habits	3.		
4. Listens attentively	4.		
5. Follows directions	5.		
6. Comes to class prepared	6.		
7. Has assignments completed	7.		
8. Has interest in making academic gains	8.		

EMOTIONAL DEVELOPMENT

1. Appears well-adjusted and happy	1.		
2. Accepts decisions of the group or decisions form the teacher	2.		
3. Can handle constructive criticism	3.		
4. Uses self-control	4.		
5. Is not easily frustrated	5.		
6. Responds as a member of the class (Does not need to be center of attention)	6.		

SOCIAL DEVELOPMENT

1. Gets along well with other students	1.		
2. Participates in group activites	2.		
3. Tries to do what is expected of him	3.		
4. Is gaining independence	4.		

			GRADE	COMMENTS
5.	Shows dependability	5.		
6.	Accepts responsibility	6.		
7.	Willing to help others	7.		
8.	Uses free time wisely	8.		